

**What is claimed is:**

1. A method of fabricating a MOSFET comprising:
  - forming a polysilicon gate electrode on a semiconductor substrate;
  - forming a first doping layer on an area of the semiconductor substrate, the area including the polysilicon gate electrode;
  - implanting dopant into the first doping layer by means of a high-tilt angle pocket ion implantation;
  - forming LDD regions on a surface of the semiconductor substrate at two sides of the polysilicon gate electrode by diffusing the dopant of the first doping layer into the semiconductor substrate;
  - forming an insulating layer on the first doping layer by diffusing the dopant of the first doping layer into the semiconductor substrate;
  - forming a spacer by etching the insulating layer and the first doping layer;
  - forming a second doping layer on the semiconductor substrate and the polysilicon gate electrode with the spacer; and
- B forming a source region and a drain region on ~~the~~<sup>a</sup> surface of the semiconductor substrate at both sides of the polysilicon gate electrode with the spacer by conducting a thermal treatment process so that the dopant of the second doping layer can be diffused into the semiconductor substrate.
- B 2. A method as defined in claim 1, wherein said semiconductor substrate comprises Si, GaAs or silicon-on-insulator.